Powerware® 9125 Two-in-One UPS
2200 VA
User's Guide

EATON | Powerware

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User's Guide

Class A EMC Statements

AS 62040.2

Some configurations are classified under AS 62040.2 as "Class-A UPS for Unrestricted Sales Distribution." For these configurations, the following applies:

WARNING This is a Class A-UPS Product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take additional measures.

Powerware, ABM, and LanSafe are registered trademarks and X-Slot and ConnectUPS are trademarks of Eaton Power Quality Corporation. Modbus is a registered trademark of Modicon. AS/400 is a registered trademark of International Business Machines Corp.

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Special Symbols

The following are examples of symbols used on the UPS or accessories to alert you to important information:

RISK OF ELECTRIC SHOCK - Indicates that a risk of electric shock is present and the associated warning should be observed.

CAUTION: REFER TO OPERATOR'S MANUAL - Refer to your operator's manual for additional information, such as important operating and maintenance instructions.

RJ-45 RECEPTACLE - For 240V models only: this receptacle provides network interface connections. Do not plug telephone or telecommunications equipment into this receptacle.

This symbol indicates that you should not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling/reuse or hazardous waste center.

This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

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Chapter 1 Introduction

The Powerware® 9125 uninterruptible power system (UPS) protects your sensitive electronic equipment from the most common power problems including power failures, power sags, power surges, brownouts, line noise, high voltage spikes, frequency variations, switching transients, and harmonic distortion.

Power outages can occur when you least expect it and power quality can be erratic. These power problems have the potential to corrupt critical data, destroy unsaved work sessions, and damage hardware — causing hours of lost productivity and expensive repairs.

With the Powerware 9125, you can safely eliminate the effects of power disturbances and guard the integrity of your equipment. Figure 1 shows the Powerware 9125 UPS with an optional Extended Battery Module (EBM).

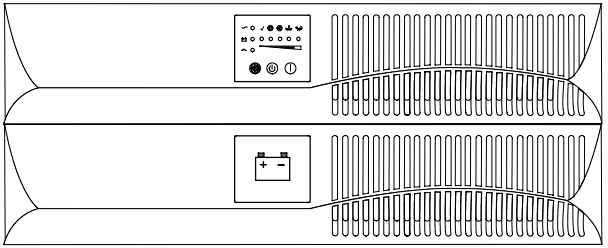


Figure 1. The Powerware 9125 UPS with Optional EBM

Providing outstanding performance and reliability, the Powerware 9125's unique benefits include the following:

- Online UPS design with pure sine wave output. The UPS filters and regulates incoming AC power and provides consistent power to your equipment without draining the battery.
- 2U rack height that conserves valuable rack space.
- Two-in-one form factor for using the UPS in a rack-mount configuration or as a standalone cabinet.
- ABM® technology that uses advanced battery management to increase battery service life, optimize recharge time, and provide a warning before the end of useful battery life.

- Hours of extended runtime with up to four EBMs.
- Start-on-battery capability for powering up the UPS even if utility power is not available.
- Hot-swappable batteries that simplify maintenance by allowing you to replace batteries safely without powering down the critical load.
- Inverter shutdown control that allows easy interfacing with Powerware maintenance bypass switches.
- Optional X-Slot™ cards with enhanced communication capabilities for increased power protection and control.
- Network transient protector that guards your network communication equipment from surges.
- Advanced power management with the Software Suite CD for graceful shutdowns and power monitoring.
- Sequential shutdown and load management through separate receptacle groups, called load segments.
- Flash memory that provides easy upgrades or reconfiguration capability without requiring a service call.
- Backed by worldwide agency approvals.

Chapter 2 Safety Warnings

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and maintenance of the UPS and batteries. Please read all instructions before operating the equipment and save this manual for future reference.

DANGER

This UPS contains **LETHAL VOLTAGES**. All repairs and service should be performed by **AUTHORIZED SERVICE PERSONNEL ONLY**. There are **NO USER SERVICEABLE PARTS** inside the UPS.

WARNING

- This UPS contains its own energy source (batteries). The output receptacles may carry live voltage even when the UPS is not connected to an AC supply.
- Do not remove or unplug the input cord when the UPS is turned on. This removes the safety ground from the UPS and the equipment connected to the UPS.
- To reduce the risk of fire or electric shock, install this UPS in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 40°C (104°F). Do not operate near water or excessive humidity (95% maximum).
- To comply with international standards and wiring regulations, the total equipment connected to the output of this UPS must not have an earth leakage current greater than 1.5 milliamperes.
- For UPS models with hardwired outputs, overcurrent protection for the output AC circuit(s) is to be provided by others.
- For UPS models with hardwired outputs, suitably rated disconnect switches for the output AC circuit(s) are to be provided by others.

CAUTION

- Batteries can present a risk of electrical shock or burn from high short-circuit current. Observe proper precautions. Servicing should be performed by qualified service personnel knowledgeable of batteries and required precautions. Keep unauthorized personnel away from batteries.
- Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Never dispose of batteries in a fire. Batteries may explode when exposed to flame.

Chapter 3 Installation

This section explains:

- Equipment inspection
- UPS internal battery connection
- UPS setup and installation
- Extended Battery Module (EBM) installation
- Inverter shutdown control operation
- UPS rear panel

Inspecting the Equipment

If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

To file a claim for shipping damage or concealed damage: 1) File with the carrier within 15 days of receipt of the equipment; 2) Send a copy of the damage claim within 15 days to your service representative.

NOTE *Check the battery recharge date on the shipping carton label. If the date has expired and the batteries were never recharged, do not use the UPS. Contact your service representative.*

Connecting the UPS Internal Battery

To ensure proper battery operation before installing the UPS:

1. Verify that the UPS is off and unplugged.
2. Remove the UPS front cover by pulling on the right side and lift the cover off (see Figure 2).

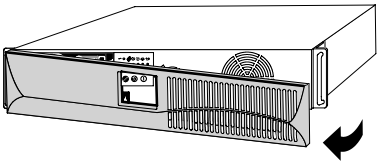


Figure 2. Removing the UPS Front Cover

3. Connect the internal battery connector (see Figure 3).

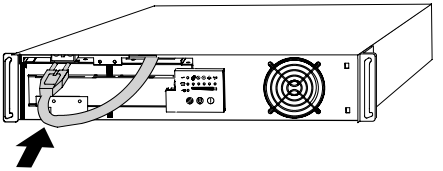


Figure 3. Connecting the Internal Battery Connector

4. Replace the UPS front cover (see Figure 4).

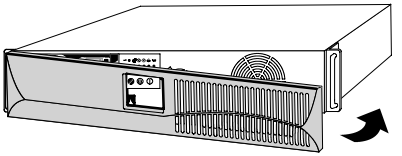


Figure 4. Replacing the UPS Front Cover

5. Continue to the following section, "UPS Setup."

UPS Setup

The Powerware 9125 UPS is designed for flexible configurations and can be installed in a rack or as a standalone cabinet.

If you are installing the UPS in a rack, continue to the following section "Rack-Mount Setup;" otherwise, continue to "Tower Setup" on page 8.

Rack-Mount Setup

The UPS can be installed in 19-inch racks and needs only 2U of valuable rack space.

CAUTION

The UPS and EBM are heavy (see page 42). A minimum of two people are required to lift the cabinets into the rack.

NOTE *Mounting rails are required for each UPS and EBM cabinet. If rails are not already installed in your rack, contact your local distributor to order rail kits.*

To install the UPS and optional EBMs in a rack:

1. Place the UPS on a flat, stable surface with the front of the UPS facing toward you.
2. Attach the supplied mounting handles to the mounting brackets and secure with the supplied screws (see Figure 5).
3. Align the mounting brackets with the screw holes on the sides of the UPS and secure with the supplied screws (see Figure 5).
4. If installing optional EBMs, repeat Steps 1 through 3 for each cabinet.

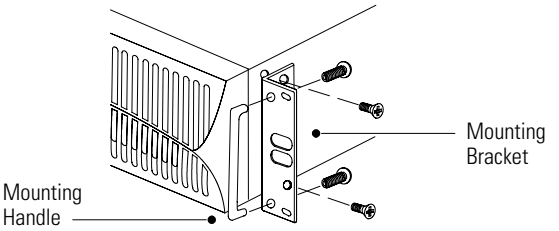


Figure 5. Installing the Mounting Handles and Brackets

NOTE *The EBMs must be installed below the UPS as shown in Figure 6.*

5. Slide the UPS and any optional EBMs into the rack.
6. Secure the cabinets to the rack according to the rail kit instructions.

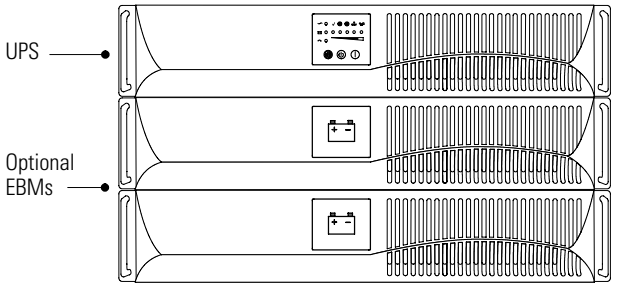


Figure 6. Rack-Mount UPS with EBMs

7. If installing optional EBMs, continue to "Extended Battery Module Installation" on page 12. Otherwise, continue to "UPS Installation" on page 14 to complete the installation.

Tower Setup

The setup varies depending on the number of cabinets you are installing:

1. **For one cabinet,** the pedestals must be installed. Continue to Step 2.

   For two cabinets, the pedestals and the joining brackets must be installed. Skip to Step 6.

   For three or more cabinets, the joining brackets must be installed. Skip to Step 9.

2. Place the UPS cabinet horizontally so that the left end of the cabinet is accessible (see Figure 7).
3. Align the pedestals with the screw holes on the end of the UPS cabinet. Secure the pedestals with the screws provided in the accessory kit.

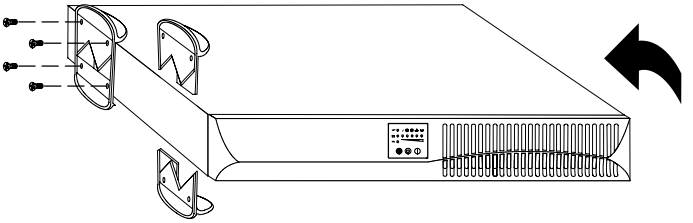


Figure 7. Installing UPS Pedestals (for One Cabinet)

4. Carefully position the cabinet upright with the air vents at the top (see Figure 8).

5. Continue to "UPS Installation" on page 14 to complete the installation.

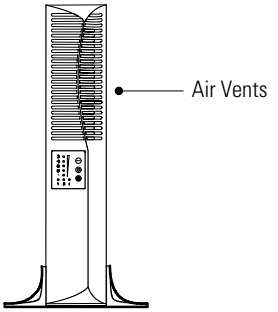


Figure 8. Pedestals with One Cabinet

6. Place the UPS cabinet horizontally so that the left end of the cabinet is accessible (see Figure 9).

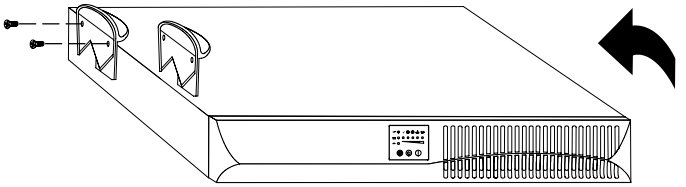


Figure 9. Installing UPS Pedestals (for Two Cabinets)

7. Place the EBM cabinet upside down so that the right end of the cabinet is accessible (see Figure 10).

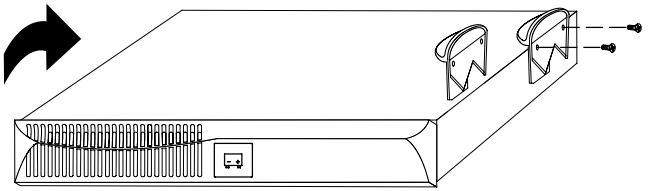


Figure 10. Installing EBM Pedestals

8. Align the pedestals with the screw holes on the end of the EBM cabinet. Secure the pedestals with the screws provided in the accessory kit.

9. Carefully position the cabinets upright with the air vents at the top (see Figure 11 or Figure 12).

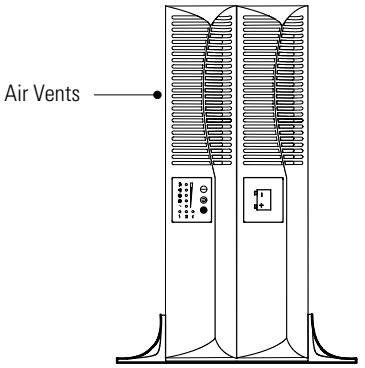


Figure 11. Pedestals with Two Cabinets

NOTE *Pedestals are required for installations with one or two cabinets. Joining brackets are required for installations with two or more cabinets.*

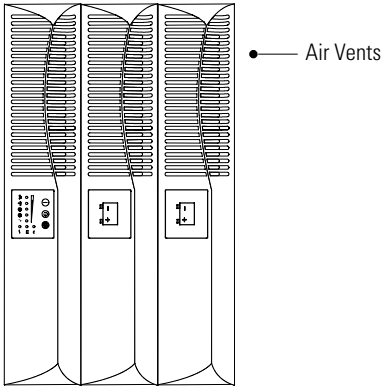


Figure 12. Tower Setup with Three Cabinets

10. Align each joining bracket with the adjacent corner screw holes and secure with the supplied screws (see Figure 13).

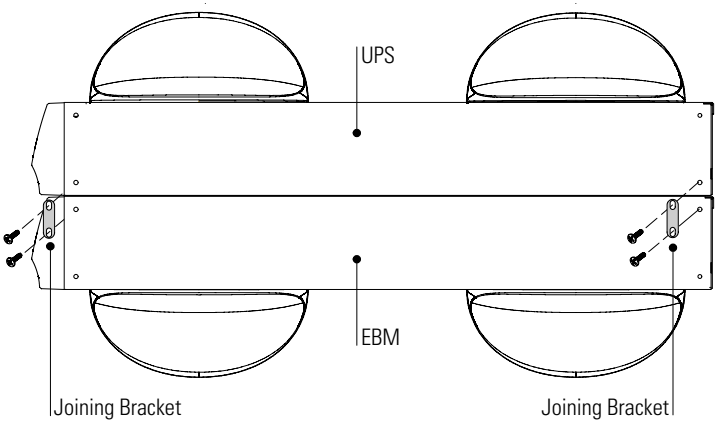


Figure 13. Installing the Joining Brackets (Top View with Pedestals)

11. If installing additional EBMs, repeat Step 10 for each cabinet.

12. If installing optional EBMs, continue to the following section, "Extended Battery Module Installation." Otherwise, continue to "UPS Installation" on page 14 to complete the installation.

Extended Battery Module Installation

CAUTION

A small amount of arcing may occur when connecting an EBM to the UPS. This is normal and will not harm personnel. Insert the EBM cable into the UPS battery connector quickly and firmly.

To install the optional EBMs:

1. The UPS has a battery connector cover that must be removed before installing the EBM(s). Remove the cover from the rear panel as shown in Figure 14.

NOTE *Keep the battery connector cover and screws for future use. If the UPS is stored or used without an EBM, the battery connector cover must be installed as a safety precaution.*

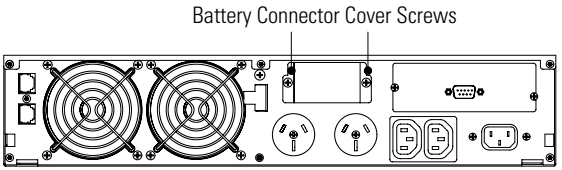


Figure 14. Battery Connector Cover

2. Remove the cover from the EBM cable as shown in Figure 15.

NOTE *Keep the EBM cable cover and screws for future use. If the EBM is stored or removed from the UPS, the EBM cable cover must be installed as a safety precaution.*

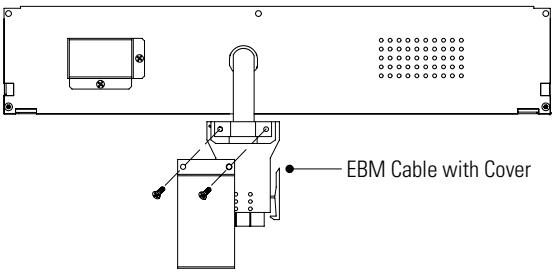


Figure 15. EBM Cable Cover

3. Plug the EBM cable into the UPS battery connector (see Figure 16).

4. Attach the fixed cover plate (supplied in the accessory kit) to the EBM cable as shown in Figure 16.

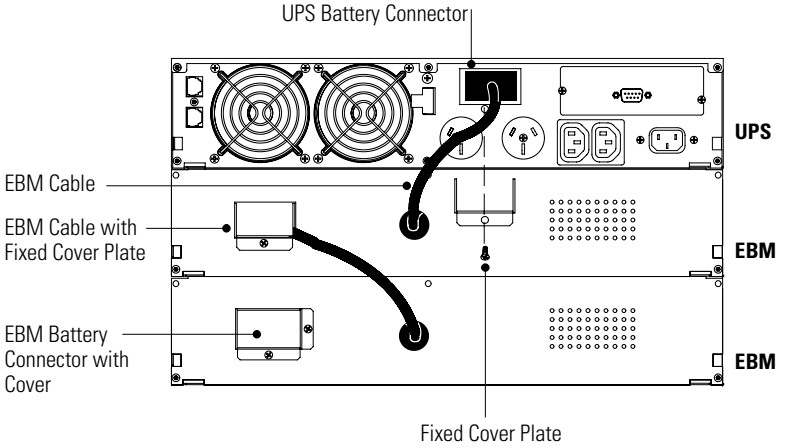


Figure 16. EBM Installation

5. If additional EBMs are to be installed, remove the EBM battery connector cover. Remove the cover from the EBM cable of the second cabinet and plug the EBM cable into the battery connector on the first EBM. Attach the fixed cover plate to the EBM cable.

   Repeat for each additional EBM. Up to four EBMs may be connected to the UPS.

6. Continue to the following section, "UPS Installation."

UPS Installation

NOTE *Do not make unauthorized changes to the UPS or accessories; otherwise, damage may occur to your equipment and void your warranty.*

To install the UPS:

1. If you are installing power management software, connect your computer to the UPS communication port using the supplied communication cable.

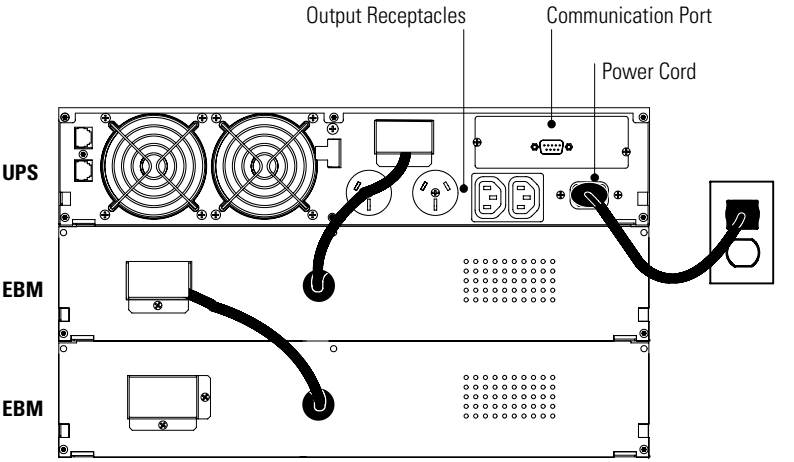


Figure 17. Typical Installation

2. Plug the equipment to be protected into the appropriate UPS output receptacles (see page 32 for more information on load segments).

NOTE *DO NOT protect laser printers with the UPS because of the exceptionally high power requirements of the heating elements.*

3. If a maintenance bypass switch is to be fitted, refer to the instructions that came with the switch.

4. Plug the detachable UPS power cord into the input connector on the UPS rear panel (see Figure 17).

5. Plug the UPS power cord into a power outlet.

   All front panel indicators flash briefly and the UPS conducts a self-test. When the self-test is complete, the ~ indicator flashes, indicating the UPS is in Standby mode with the equipment offline. If the or indicator flashes, see page 47.

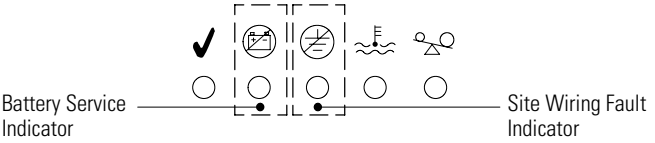


Figure 18. Fault Indicators

6. Press the On | button.

   The ~ indicator illuminates solid and the bar graph indicators display the percentage of load being applied to the UPS. The UPS is now in Normal mode and supplying power to your equipment.

   To change the factory-set defaults, see "Configuration" on page 23.

NOTE *The batteries charge to 90% capacity in approximately 3 hours. However, it is recommended that the batteries charge for 24 hours after installation or long-term storage.*

Inverter Shutdown Input

The Powerware 9125 2200 VA UPS has an inverter shutdown port that allows the UPS to be interlocked with a Powerware maintenance bypass switch.

The inverter shutdown feature, when used in conjunction with an optional Powerware maintenance bypass switch, allows the protected load to be transferred to the bypass supply without interruption. This feature allows the UPS to be removed from service for maintenance or replacement.

The inverter shutdown function is activated by opening the link on the rear panel.

For further information, refer to the instructions that came with the Powerware maintenance bypass switch.

WARNING

The inverter shutdown circuit is an AS/NZS 60950 safety extra low voltage (SELV) circuit. This circuit must be separated from any hazardous voltage circuits by reinforced insulation.

CAUTION

If the inverter shutdown link is opened while the input power is absent or the UPS is supplying power from the battery, power may be removed from the supported load.

UPS Rear Panel

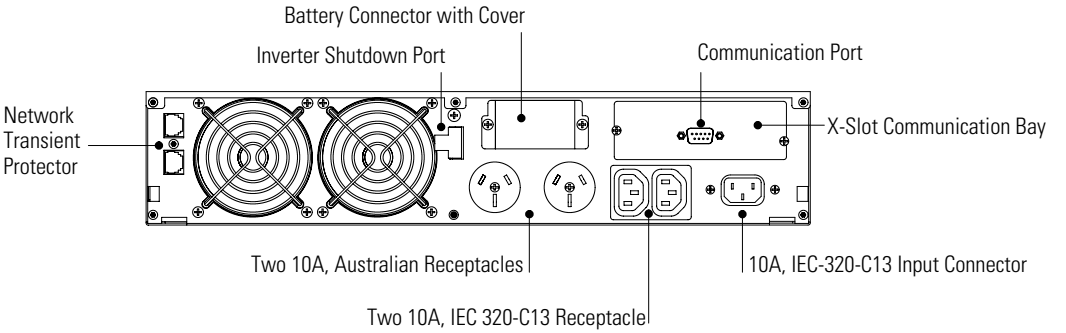


Figure 19. PW9125-2200A Rear Panel

Chapter 4 Operation

This section describes:

- Turning the UPS on and off
- Starting the UPS on battery
- Initiating the self-test
- Operating modes

Turning the UPS On

After the UPS is connected to utility power, it conducts a self-test and enters Standby mode.

To turn on the UPS, press the On | button on the front panel. The ⁓ indicator illuminates solid and the bar graph indicators display the percentage of load being applied to the UPS.

Starting the UPS on Battery

To turn on the UPS without using utility power, press and hold the On | button for at least four seconds. The UPS starts up in Battery mode and supplies battery power to your equipment. When the UPS starts on battery, it does not conduct a self-test to conserve battery power.

Turning the UPS Off

NOTE *Pressing the Off ⏻ button while the UPS is in Battery mode causes the UPS to shut down immediately.*

To turn off the UPS:

1. Prepare your equipment for shutdown.
2. Press and hold the Off ⏻ button for approximately three seconds. The UPS transfers to Standby mode (if utility power is available) and removes power from your equipment.
3. Unplug the UPS; the UPS shuts down in five seconds. All front panel indicators flash briefly prior to shutdown.

   If you do not unplug the UPS, it remains in Standby mode.

Initiating the Self-Test

NOTE *The batteries must be fully charged and the UPS must not be in Battery mode to perform the self-test.*

NOTE *AC input power must be applied to the UPS for 24 hours before performing the self-test.*

Press and hold the 🔊 button for three seconds to initiate the self-test. During the five-second test, the bar graph indicators cycle through twice. If the alarm beeps or a UPS alarm indicator stays on, see Table 10 on page 46.

Operating Modes

Powerware 9125's front panel indicates the UPS status through the UPS indicators. Figure 20 shows the UPS front panel indicators and controls.

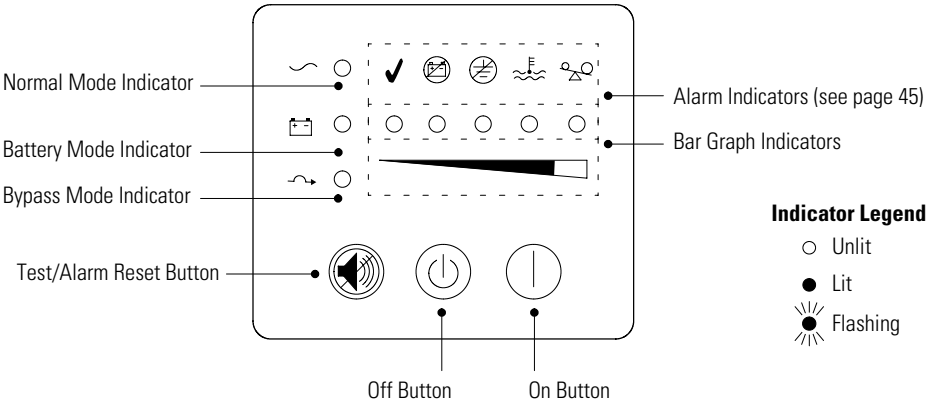


Figure 20. UPS Front Panel

Normal Mode

During Normal mode, the ~ indicator illuminates and the front panel displays the percentage of UPS load capacity being used by the protected equipment (see Figure 21). The UPS monitors and charges the batteries as needed and provides power protection to your equipment.

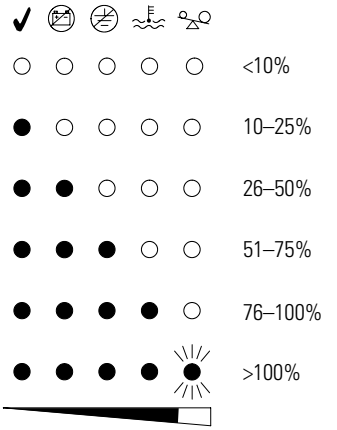


Figure 21. Load Level Indicators

When all of the bar graph indicators are illuminated and the indicator flashes, power requirements exceed UPS capacity; see page 47 for more information.

Battery Mode

When the UPS is operating during a power outage, the alarm beeps once per second and the indicator illuminates. The front panel displays the approximate percentage of battery capacity remaining (see Figure 22).

When utility power returns, the UPS transfers to Normal mode operation while the battery recharges.

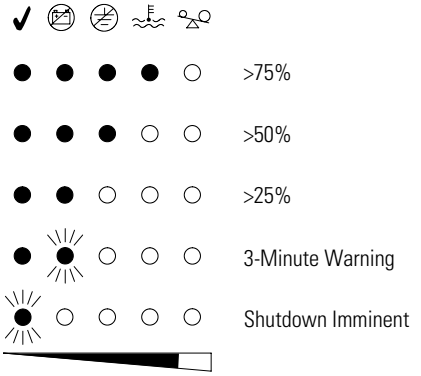


Figure 22. Battery Capacity Indicators

If battery capacity becomes low while in Battery mode, the indicator starts flashing and the alarm becomes continuous, indicating approximately three minutes of battery time remaining. When shutdown is imminent, the indicator flashes.

NOTE *Depending on the UPS load, the 3-minute warning may occur before the batteries reach 25% capacity; the front panel immediately displays the 3-minute warning. For UPS and Extended Battery Module (EBM) runtimes, see Table 9 on page 43.*

These warnings are approximate, and the actual time to shutdown may vary significantly. Once these warnings are indicated, immediately complete and save your work to prevent data loss and similar difficulties.

When utility power is restored after the UPS shuts down, the UPS automatically restarts.

Bypass Mode

In the event of a UPS overload or internal failure, the UPS transfers your equipment to utility power. Battery mode is not available; however, the utility power continues to be passively filtered by the UPS. The ⎓→ indicator illuminates. The UPS transfers to Bypass mode when:

- The UPS has an overtemperature condition.
- The UPS has an overload condition of 101 to 150% for 30 seconds.
- The UPS detects a fault in the battery or UPS electronics.
- The inverter shutdown link is open or removed.

Standby Mode

When the UPS is turned off and remains connected to utility power, the UPS is in Standby mode. The ~ indicator flashes and the bar graph indicators are off, indicating that power is not available to your equipment. The battery recharges when necessary.

NOTE *The output receptacles may remain electrically live (up to 120V). Unplug the UPS to ensure power is not available to the output receptacles.*

Chapter 5 Configuration

When the UPS is in Configuration mode, the bar graph indicators represent the configuration options. Use the control buttons (On | button and 🔊 button) to modify the UPS configuration. Figure 23 shows the LEDs and Table 1 explains the corresponding options.

NOTE *The UPS can be configured while in Battery mode. If the UPS transfers to battery power while in Configuration mode, the UPS remains in Configuration mode and indicates Battery mode on the front panel after exiting Configuration mode.*

To reconfigure the UPS default settings:

1. Press and hold the On | button and the 🔊 button simultaneously for one beep. The UPS transfers to Configuration mode.

   The LEDs flash briefly and then display the enabled options.

2. Press the On | button to scroll through the options. Each time you press the button, the UPS beeps. The LED for the selected option indicates the current setting; flashing represents disabled options (see Figure 23 and Table 1).

   Scrolling past the last LED returns to the first configuration option.

   If you press the On | button and nothing happens, the UPS is still in Operation mode. Repeat Step 1 to enter Configuration mode, and then perform Step 2.

3. Press the 🔊 button for approximately one second to select the Voltage option or to toggle the AC Input Failure Alarm on or off.

NOTE *The UPS automatically exits Configuration mode after two minutes of inactivity.*

4. Press and hold the On | button and the 🔊 button simultaneously to exit Configuration mode at any time.

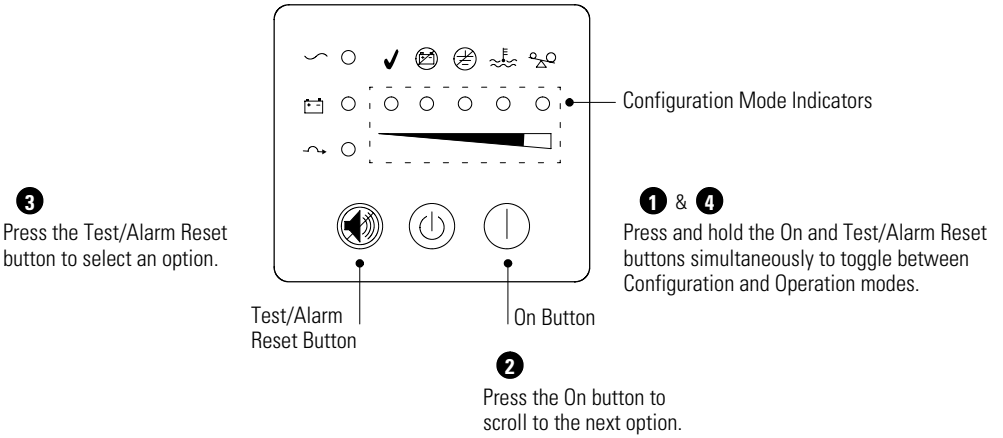
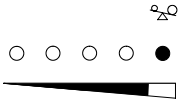
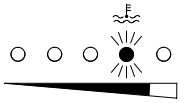
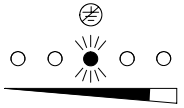
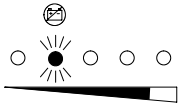
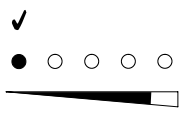

Configuration Mode Indicators
3
Press the Test/Alarm Reset button to select an option.
1 & 4
Press and hold the On and Test/Alarm Reset buttons simultaneously to toggle between Configuration and Operation modes.
Test/Alarm Reset Button
On Button
2
Press the On button to scroll to the next option.

Figure 23. Using Configuration Mode

Table 1. Configuration Mode LEDs and Options

Configuration Mode LEDs	Option	LED Status	Explanation
	240V Nominal Input Voltage	On (default)	Selecting this option changes the nominal input voltage to 240V. All other nominal input voltages are disabled.
		Flashing	Disabled; one of the other input voltage options is selected.
	230V Nominal Input Voltage	On	Selecting this option changes the nominal input voltage to 230V.
		Flashing	Disabled; one of the other input voltage options is selected.
	220V Nominal Input Voltage	On	Selecting this option changes the nominal input voltage to 220V.
		Flashing	Disabled; one of the other input voltage options is selected.
	Site Wiring Fault Alarm	On*	* Contact your service representative to activate this alarm. Alarm sounds when the polarity of the outlet is reversed or the ground connection is missing; have a qualified electrician repair the outlet wiring.
		Flashing (default)	Alarm DOES NOT sound when the polarity of the outlet is reversed or the ground connection is missing.
	AC Input Failure Alarm	On (default)	Alarm sounds when there is an AC input failure.
		Flashing	Alarm DOES NOT sound when there is an AC input failure.

Chapter 6 Additional UPS Features

This section describes:

- X-Slot cards
- Network transient protector
- Load segments

X-Slot Cards

X-Slot cards allow the UPS to communicate in a variety of networking environments and with different types of devices. The Powerware 9125 is factory-installed with a Single-Port Card, which can be replaced with one of the following X-Slot cards:

- ConnectUPS™-X Web/SNMP Card - has SNMP and HTTP capabilities as well as monitoring through a Web browser interface; connects to a twisted-pair Ethernet (10/100BaseT) network. It has a built-in switching hub that allows three additional network devices to be connected to the network without the requirement of additional network drops. In addition, a Powerware Environmental Monitoring Probe can be attached to obtain humidity, temperature, smoke alarm, and security information.
- Relay Interface Card - has isolated dry contact (Form-C) relay outputs for UPS status: Utility failure, Low battery, UPS alarm/OK, or On bypass.
- Modbus® Card - allows you to continuously and reliably monitor the UPSs in your Building Management System (BMS).
- Multi-Server Card - has six serial communication ports that can communicate simultaneously with other computers using Powerware LanSafe® Power Management Software (provided on the Software Suite CD).
- USB Card - connects to a USB port on your computer.

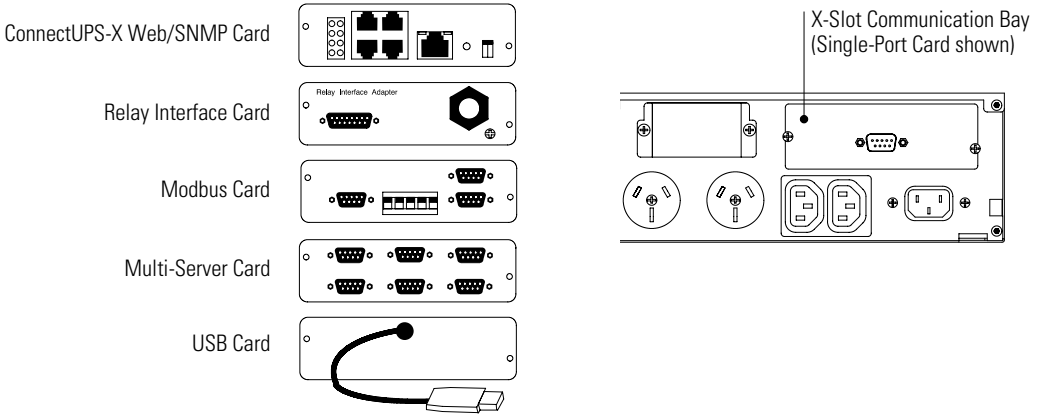


Figure 24. Optional X-Slot Cards

Single-Port Card

The Powerware 9125 is factory-installed with a Single-Port Card, enabling connection to a PC for power management control or to the Powerware Expansion Chassis for multiple communication options.

To establish communication between the UPS and a computer, connect your computer to the UPS communication port using the supplied communication cable.

When the communication cable is installed, power management software can exchange data with the UPS. The software polls the UPS for detailed information on the status of the power environment. If a power emergency occurs, the software initiates the saving of all data and an orderly shutdown of the equipment.

Figure 25 identifies the cable pins and Table 2 describes the pin functions.

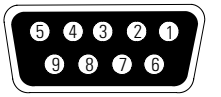


Figure 25. Communication Port

Table 2. Communication Port Pin Assignment

Pin Number	Signal Name	Function	Direction from the UPS
1	Low Batt	Low Battery relay contact; 20 mA, 30 Vdc contact rating	Out
2	TxD	Transmit to external device	Out
3	RxD	Receive from external device	In
4	DTR	PnP (Plug and Play) from external device (tied to Pin 6)	In
5	GND	Signal common (tied to chassis)	—
6	DSR	To external device (tied to Pin 4)	Out
7	RTS	PnP from external device (default) or On Bypass relay contact (jumper-selectable)	In / Out
8	AC Fail	AC Fail relay contact; 20 mA, 30 Vdc contact rating	Out
9	Power Source	+V (8 to 24 volts DC power)	Out

The On-Bypass Relay Contact. You can enable the On-Bypass relay using the jumper on the Single-Port Card. The jumper default is disabled.

To enable the On-Bypass relay:

1. Remove the Single-Port Card on the UPS rear panel. Retain the screws (see Figure 26).

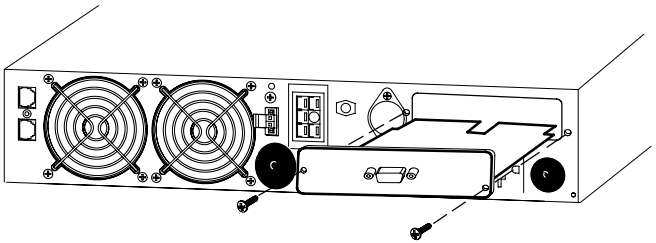


Figure 26. Removing the Single-Port Card

2. Move the J3 jumper to the AS/400® position to enable the On-Bypass relay, as shown in Figure 27.

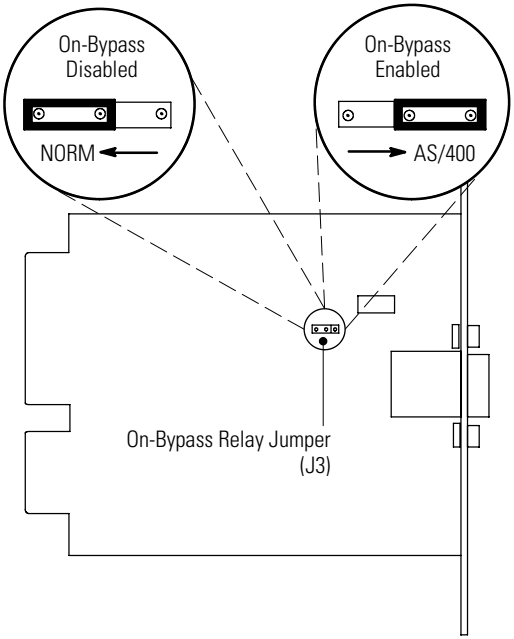


Figure 27. On-Bypass Relay Jumper

3. To prevent electrostatic discharge (ESD), place one hand on a metal surface such as the UPS rear panel.

Align the Single-Port Card with the slot guides and slide the card into the slot until it is firmly seated.

4. Secure the Single-Port Card with the screws removed in Step 1.

Network Transient Protector

The network transient protector, shown in Figure 28, is located on the rear panel and has jacks labeled IN and OUT. This feature accommodates a single RJ-45 (10/100BaseT) network connector.

NOTE *DO NOT connect any telephone or fax/modem equipment to the 240V models; only network protection is available for 240V models.*

NOTE *This connection is optional and is not needed to use the UPS. A 10/100BaseT network cable is not provided.*

1. Connect the 10/100BaseT network cable to the jack labeled IN.
2. Connect the input connector of the protected equipment to the jack labeled OUT.

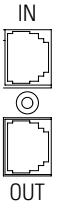


Figure 28. Network Transient Protector

Load Segments

Load segments are sets of receptacles that can be controlled by power management software, providing an orderly shutdown and startup of your equipment. For example, during a power outage, you can keep key pieces of equipment running while you turn off other equipment. This feature allows you to save battery power. See your power management software manual for details (refer to the Software Suite CD or www.powerware.com for the latest information).

NOTE *If power management software is not used, the individual load segments cannot be controlled.*

The UPS has two load segments as shown in Figure 29.

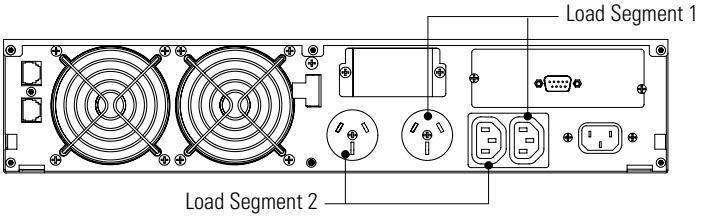


Figure 29. UPS Load Segments

Chapter 7 UPS Maintenance

This section explains how to:

- Care for the UPS and batteries
- Replace the batteries
- Test new batteries
- Recycle used batteries or UPS

UPS and Battery Care

For the best preventive maintenance, keep the area around the UPS clean and dust-free. If the atmosphere is very dusty, clean the outside of the system with a vacuum cleaner.

For full battery life, keep the UPS at an ambient temperature of 25°C (77°F).

NOTE *If the UPS requires any type of transportation, verify that the UPS is unplugged and turned off and then disconnect the UPS internal battery connector using the steps in "Connecting the UPS Internal Battery" on page 6 in reverse order.*

NOTE *The batteries in the UPS are rated for a 3–5 year service life. The length of service life varies, depending on the frequency of usage and ambient temperature. Batteries used beyond expected service life will often have severely reduced runtimes. Replace batteries at least every 5 years to keep units running at peak efficiency.*

Storing the UPS and Batteries

If you store the UPS for a long period, recharge the batteries every 12 months by plugging the UPS into a power outlet. The batteries charge to 90% capacity in approximately 3 hours. However, it is recommended that the batteries charge for 24 hours after long-term storage.

Check the battery recharge date on the shipping carton label. If the date has expired and the batteries were never recharged, do not use the UPS. Contact your service representative.

When to Replace Batteries

When the indicator flashes, the batteries may need replacing. Conduct a self-test by pressing and holding the button for three seconds. After the five-second test is complete, the indicator should turn off (it may take a few seconds to turn off). If the indicator continues flashing, contact your service representative to order new batteries.

Replacing Batteries

NOTE *DO NOT DISCONNECT the batteries while the UPS is in Battery mode.*

With the hot-swappable battery feature, UPS batteries can be replaced easily without turning the UPS off or disconnecting the load.

If you prefer to remove input power to change the batteries, see "Turning the UPS Off" on page 18.

Consider all warnings, cautions, and notes before replacing batteries.

WARNING

- Batteries can present a risk of electrical shock or burn from high short-circuit current. The following precautions should be observed: 1) Remove watches, rings, or other metal objects; 2) Use tools with insulated handles; 3) Do not lay tools or metal parts on top of batteries.
- ELECTRIC ENERGY HAZARD. Do not attempt to alter any battery wiring or connectors. Attempting to alter wiring can cause injury.

How to Replace UPS Internal Batteries

CAUTION

Pull the battery out onto a flat, stable surface. The battery is unsupported when you pull it out of the UPS.

To replace the UPS internal batteries:

1. Remove the UPS front cover by pulling on the right side and lift the cover off (see Figure 30).

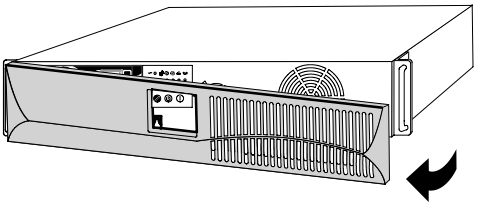


Figure 30. Removing the UPS Front Cover

2. Push down on and unsnap the LED panel (see Figure 31).

3. Disconnect the battery cable from the UPS and cut the battery cable tie wrap.

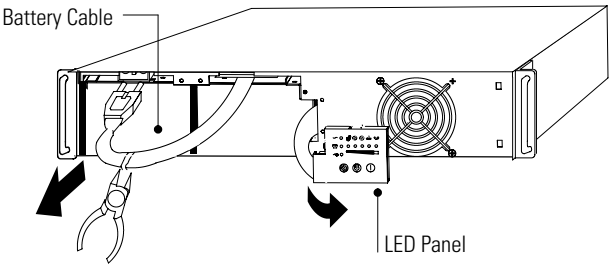


Figure 31. Disconnecting the Battery Cable

4. Unscrew and set aside the battery retaining bracket (see Figure 32).

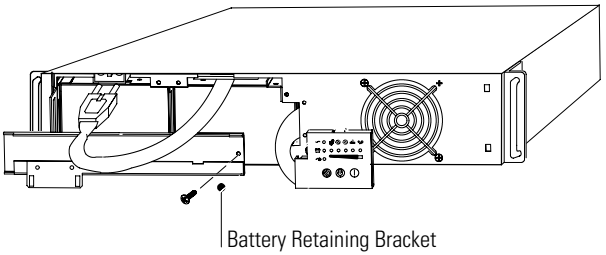


Figure 32. Removing the Battery Retaining Bracket

5. Pull the battery trays out onto a flat, stable surface (see Figure 33). See "Recycling the Used Battery or UPS" on page 39 for proper disposal.

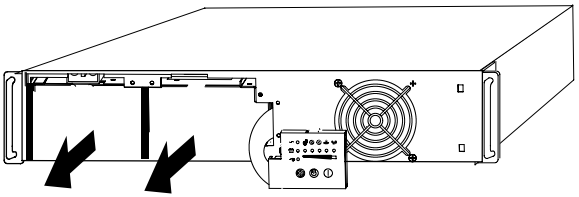


Figure 33. Removing the Battery Trays

6. Slide the new battery trays into the UPS.

   The battery trays are keyed to prevent improper connection. The battery tray with the battery cable goes in the bay to the right.

7. Reinstall the battery retaining bracket removed in Step 4.

8. Reconnect the battery cable. Secure the cable to the battery retaining bracket with a tie wrap.

9. Snap the LED panel into place.

10. Replace the UPS front cover.

How to Replace Extended Battery Modules

CAUTION

The Extended Battery Module (EBM) is heavy (see page 42). A minimum of two people are required to lift the EBM when it is replaced.

To replace the EBMs:

1. Remove the fixed cover plate, and then unplug the EBM cable from the UPS.

   If additional EBMs are installed, unplug the EBM cable from the battery connector on each EBM.

2. If the EBM is in a tower configuration, remove the joining brackets.

3. If the EBM has pedestals installed, remove the pedestals and retain.

4. If the EBM is in a rack, install the mounting handles and brackets on the new EBM.

5. Replace the EBM. See "Recycling the Used Battery or UPS" on page 39 for proper disposal.

6. Reinstall the pedestals if removed in Step 3.

7. Reinstall the joining brackets if removed in Step 2.

8. Remove the cover from the EBM cable and plug the EBM cable into the UPS (see Figure 34). Attach the fixed cover plate to the EBM cable.

   For additional EBMs, remove the EBM battery connector cover. Remove the cover from the EBM cable of the second cabinet and plug the EBM cable into the battery connector on the first EBM. Attach the fixed cover plate to the EBM cable.

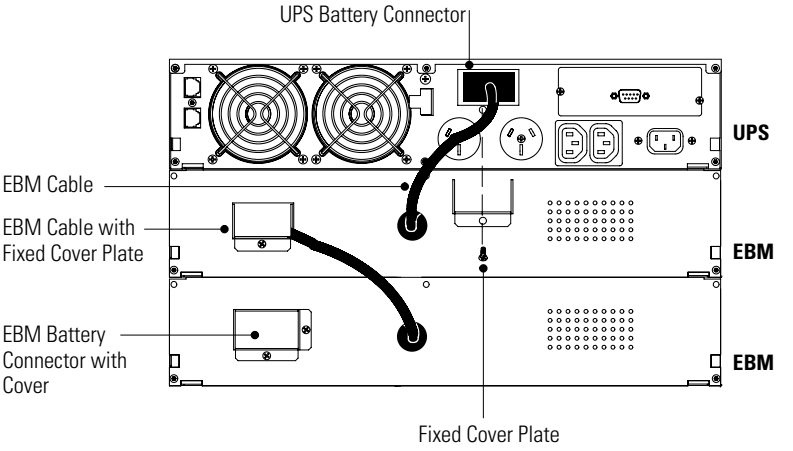


Figure 34. EBM Connections

Testing New Batteries

Press and hold the button for three seconds to initiate a self-test. After the five-second test is complete, the indicator should turn off (it may take a few seconds to turn off). If the indicator stays on, check the battery connections. Call your service representative if the problem persists.

Recycling the Used Battery or UPS

Contact your local recycling or hazardous waste center for information on proper disposal of the used battery or UPS.

WARNING

- Do not dispose of the battery or batteries in a fire. Batteries may explode. Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

CAUTION

Do not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling/reuse or hazardous waste center.

CAUTION

Do not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

Chapter 8 Specifications

This section provides the following specifications:

- Model list
- Electrical input and output
- Weights and dimensions
- Environmental and safety
- Battery

Table 3. Model Specifications

Model Number	Power Levels (Rated at Nominal Inputs)	Nominal Voltage	Input Voltage Range
PW9125-2200A	2200 VA, 1540W	240V default; 230V or 220V selectable	160–288V

Table 4. Power Connections

Model	Input Connection	Output Connections	
		Load Segment 1	Load Segment 2
PW9125-2200A	10A, IEC 320-C13 input connector Country-specific, detachable power cord	(1) 10A, IEC receptacle (1) 10A, Australian receptacle	(1) 10A, IEC receptacle (1) 10A, Australian receptacle

Table 5. Technical Specifications

Nominal Frequency	45–65 Hz, 50/60 Hz auto-sensing
Noise Filtering	MOVs and line filter for normal and common mode noise
Regulation (Normal Mode)	Nominal output voltage ±3%
Regulation (Battery Mode)	Nominal output voltage ±3%
Voltage Waveform	Normal mode: Sine wave; <5% THD with full PFC and nonlinear load

Table 6. Weights and Dimensions

	UPS	Extended Battery Module
Dimensions (WxDxH)	43.2 × 60.7 × 8.9 cm 17.0″ × 23.9″ × 3.5″ (2U)	43.2 × 60.7 × 8.9 cm 17.0″ × 23.9″ × 3.5″ (2U)
Weights	37 kg (81.5 lb)	42.5 kg (93 lb)

Table 7. Environmental and Safety

Operating Temperature	0°C to 40°C (32°F to 104°F) Optimal battery performance: 25°C (77°F)
Storage Temperature	0°C to 25°C (32°F to 77°F)
Transit Temperature	-25°C to 55°C (-13°F to 131°F)
Relative Humidity	5–95% noncondensing
Operating Altitude	Up to 3,000 meters above sea level
Transit Altitude	Up to 10,000 meters above sea level
Audible Noise	Less than 45 dBA Normal mode, typical load Less than 50 dBA Battery mode
Surge Suppression	AS/NZS 61000.4.5
Safety Conformance	AS/NZS 60950, AS62040.1.1
Agency Markings	C-Tick
EMC (Class A)	AS 62040.2

Table 8. Battery

UPS Configuration	(6) 12V, 9 Ah internal batteries
EBM Configuration	PW9125 72 EBM: (12) 12V, 9 Ah (2 strings of 6 batteries in parallel)
Type	Sealed, maintenance-free, valve-regulated, lead-acid
Charging	Internal battery: approximately 3 hours to 90% usable capacity at nominal line voltage after full load discharge External battery: no more than 20x discharge time to 90% usable capacity at nominal line voltage after full load discharge
Monitoring	Advanced monitoring for earlier failure detection and warning; auto detection of additional EBMs

Table 9. Battery Runtimes (in Minutes at Full/Half Load)

Model	UPS Internal Batteries	+1 EBM	+2 EBMs	+3 EBMs	+4 EBMs
2200 VA/1540W	7/15	32/61	61/112	92/165	123/217

NOTE Battery times are approximate and vary depending on the load configuration and battery charge.

Chapter 9 Troubleshooting

This section explains:

- UPS alarms and conditions
- How to silence an alarm
- Service and support

Audible Alarms and UPS Conditions

The UPS has an audible alarm feature to alert you of potential power problems. Use Table 10 to determine and resolve the UPS alarms and conditions.

NOTE *Some alarms, such as the Overtemperature and Overload alarms, must be cleared by shutting down and restarting the UPS (see page 47 for more information).*

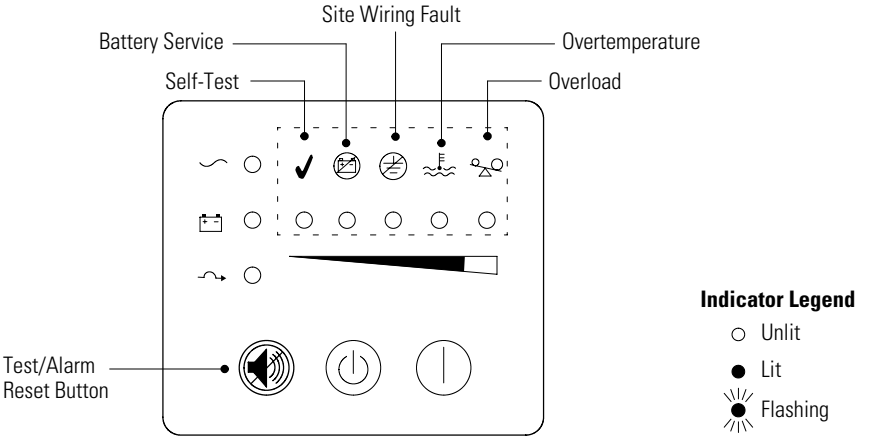


Figure 35. Alarm Indicators

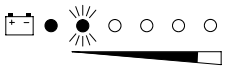
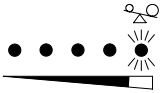
Silencing an Audible Alarm

Before silencing an alarm, check the alarm condition and perform the applicable action to resolve the condition (see Table 10).

To silence the alarm for an existing fault, press the button. If UPS status changes, the alarm beeps, overriding the previous alarm silencing.

Table 10. Troubleshooting Guide

Alarm or Condition	Possible Cause	Action
The ~ indicator is not on; the UPS does not start.	The power cord is not connected correctly.	Check the power cord connections.
	The wall outlet is faulty.	Have a qualified electrician test and repair the outlet.
	The main utility breaker is off.	Verify that the main utility breaker is on.
	The inverter shutdown signal is active.	Verify that the inverter shutdown link is installed.
The ~ indicator is flashing; power is not available at the UPS output receptacles.	The UPS is in Standby mode.	Press the On | button to supply power to the connected equipment.
The UPS operates normally, but some or all of the protected equipment is not on.	The equipment is not connected to the UPS correctly.	Verify that the equipment is plugged into the UPS receptacles.
	The output receptacle circuit breaker (if applicable) is open.	Check the load. Disconnect faulty load equipment. Wait several minutes before resetting the UPS circuit breaker.
	One of the load segments has been turned off through the power management software.	Reactivate the segment with the software.
The UPS does not provide the expected backup time.	The batteries need charging or service.	Plug the UPS into a power outlet for 24 hours to charge the batteries. After charging the batteries, press and hold the button for 3 seconds; then check the indicator. If the indicator is still flashing, see "Replacing Batteries" on page 34.
Battery Intermittent audible alarm	The UPS is on battery (see "Battery Mode" on page 21 for more information).	The UPS is powering the equipment with battery power. Check the bar graph indicators for available battery capacity and prepare your equipment for shutdown.
Warning - Low Battery	Three-minute battery warning.	Three minutes or less of battery power remains (depending on load configuration and battery charge). Save your work and turn off your equipment.

Alarm or Condition	Possible Cause	Action
 Shutdown - Low Battery	Shutdown imminent.	Prepare equipment for shutdown.
Bypass	The UPS is in Bypass mode.	The equipment is transferred to utility power; however, the utility power continues to be passively filtered by the UPS. Check for one of the following alarms: Overtemperature, Overload, UPS Failure, or Battery Service.
Bypass	Bypass is not available. Input voltage is not within ±12% of nominal or input frequency is not within ±3% of nominal.	The UPS is receiving utility power that may be unstable or in brownout conditions. The UPS continues to supply power to your equipment. If conditions worsen, the UPS may switch to battery power.
Battery Service	The batteries may be fully discharged.	Plug the UPS into a power outlet for 24 hours to charge the batteries. After charging the batteries, press and hold the button for 3 seconds; then check the indicator. If the indicator is still flashing, see "Replacing Batteries" on page 34.
	The batteries are not connected correctly.	Check the battery connections. Call your service representative if the problem persists.
Overtemperature	The UPS internal temperature is too high. The UPS transfers to Bypass mode, allowing the UPS to cool.	Turn off the UPS. Unplug the UPS. Clear the vents and remove any heat sources. Ensure the airflow around the UPS is not restricted. Wait at least 5 minutes and restart the UPS. If the condition persists, contact your service representative.
 Overload Continuous audible alarm	Power requirements exceed UPS capacity (101–150% for 30 seconds) or the load is defective.	Turn off the UPS. Unplug the UPS. Remove some of the equipment from the UPS. Wait at least 5 seconds until all indicators are off and restart the UPS. If the overload condition persists (101–110% for 2 minutes or 111–150% for 30 seconds), the UPS automatically shuts down.

Service and Support

Eaton Power Quality Pty Ltd
ABN 82 054 056 709
13 Healey Road, Dandenong VIC 3175

Phone: 03 9706 5022
Fax: 03 9794 9150

Sales Phone: 1300 UPS UPS
Sales E-mail: info.au@powerware.com

Sales Offices

QUEENSLAND
Phone: 07 3891 1211

NEW SOUTH WALES
Phone: 02 9693 9366

WESTERN AUSTRALIA/NT
Phone: 08 9446 0520

SOUTH AUSTRALIA
Phone: 08 8347 3622

NEW ZEALAND
National Service Centre Tel. 1300 303 059

www.powerware.com.au

Chapter 10 Warranty

Product Warranty
Eaton Power Quality Pty Ltd
ABN 82 054 056 709

This Warranty is subject to Eaton Power Quality Pty Ltd (EPQ) standard Conditions of Sale, which govern all sales of products by Eaton Power Quality Pty Ltd.

1. EPQ products, in general, are warranted against failure due to faulty materials and/or workmanship for a period of two years from despatch date (ex EPQ store) as per invoice. The Ferroresonant and 95 Series Power Conditioners and Dry Type Transformers have an extended warranty - 5 years from date of despatch. The Transient Voltage Surge Suppression (TVSS) products are warranted against faulty materials and workmanship for certain periods from the date of purchase. Please refer to your equipment literature or catalogue for warranty periods. Please also note that it is possible that an excessive surge (such as from a direct lightning strike to the building or a building wiring fault) may cause damage to a unit and render it inoperable. In the case of filters/surge diverters, the units are designed to protect your equipment. However, due to the unpredictability of surge events, this is not a guarantee. A unit that has been damaged in this way is not warranted.
2. If, within the applicable Warranty period, any EPQ product does not meet the warranty specified above, and the product was installed and operated in accordance with EPQ recommended standard installation procedures, EPQ shall thereupon correct any defects due to faulty materials and/or workmanship.
3. Any modification made to the product other than those made by EPQ or its authorised representative may cause the Warranty to be void.
4. For units up to 3kVA that are installed as a portable device and TVSS products, the Warranty covers repair or replacement of defective parts at the factory, or other service locations as nominated by EPQ, provided the unit has been returned by the user packed adequately to prevent shipping damage, and approval has been obtained from EPQ before shipment. All costs associated with the return of the product to EPQ are at the customer's expense. For hardwired products 3kVA and above (except TVSS products), the Warranty covers on site repair (Metropolitan area, Capital Cities only), during normal working hours, by EPQ technicians or appointed agents. For units installed in remote locations, EPQ may, at its discretion, request the equipment to be recovered and returned to the factory or other nominated service locations. In this case, it is the customer's responsibility to pack the equipment adequately to prevent shipping damages and pay freight charges to the location nominated by EPQ. Approval to return goods must be obtained from EPQ before the goods are despatched.
5. Units returned for in-warranty repairs, which are found not to be defective, will be subject to an inspection and handling charge, plus transportation charges.
6. High grade batteries, designed for Uninterruptible Power Supply (UPS) applications, are supplied by EPQ for use with EPQ UPS equipment. These batteries have a finite life expectancy depending on a number of variables, including rate of discharge, depth of discharge, operating temperature, etc.
7. Providing that the batteries are used within the limits as set out in the battery manufacturer's warranty statement and are provided as an integral part of new equipment, they are guaranteed for two years, from despatch date as per invoice. A copy of this warranty statement is available on request. Batteries provided as spare parts or replacements have a one year warranty. Other optional warranty terms for batteries are available on request.
8. EPQ reserves the right to charge for replacement batteries if within the one year guarantee period replacement batteries are necessary as a result of misuse or misapplication by the purchaser or end user.

REF: WARRANTY.DOC Rev 9 Effective Date: January 2004

EATON | Powerware

Warranty Registration

Company/Organisation: .....

Address: .....

City: ..... State: .....

Country: ..... Postcode: .....

Telephone: ..... Fax: .....

E-mail: .....

UPS Model Number: ..... UPS Serial Number: .....

Battery Pack Model No:..... Installed by:.....

Date of Commissioning: ...../...../..... Commissioned by:.....

1.Would you like information about Eaton Extended Warranty? ❑Yes ❑No

2.Would you like information about Eaton Maintenance Packages? ❑Yes ❑No

3.Would you like information about remote monitoring of your power system? ❑Yes ❑No

4.Would you like information about site power quality audits? ❑Yes ❑No

5. Where did you purchase this Powerware UPS from?

❑Direct from Eaton ❑Eaton Distributor ❑Electrical Wholesaler

❑Electrical Contractor ❑IT Systems Integrator ❑Other .....

6. Why did you purchase a Powerware UPS? (Check all that apply)

❑Recommendation ❑Reputation ❑After Purchase Support

❑Features ❑Price ❑Other .....

7. Did you purchase any optional warranty enhancements or service contracts? ❑Yes ❑No

8. What equipment do you intend to protect with this Powerware UPS?

❑Server/Network Equip. ❑Midrange Computer(s) ❑Mainframe(s) ❑Industrial Automation

❑Telecommunications Equipment ❑Facilities/Building wide protection ❑Other .....

9.How would you classify your type of business?

❑Retail ❑Wholesale/Distribution ❑Manufacturing ❑Telecommunications

❑Government/Education ❑Banking/Finance ❑Restaurant/Hotel ❑Other .....

10.Would you like to be kept informed about new Eaton product developments and be added to our customer service database?

❑Yes (you will receive mail from Eaton at least three (3) times per year) ❑No

To secure your registration, please complete and send to Eaton in the Reply Paid Envelope or fax to 03 9794 9969

Phone: 1300 303 059
Web: www.powerware.com.au

Eaton Engineering Services
13 Healey Road, Dandenong
VIC 3175 Australia

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